

What is claimed is:

1. A photoelectric encoder comprising:

a main scale with a grating;

a light receiving portion with an index grating and a  
5 light receiving element, the light receiving portion capable  
move relative to the main scale, the light receiving portion  
detecting a bright/dark pattern obtained at least by the grating  
of the main scale; and

a lens disposed between the main scale and the light  
10 receiving portion,

wherein a magnification of an image is set by adjusting  
distances among the lens, the main scale and the light receiving  
portion.

15 2. The photoelectric encoder according to Claim 1,  
wherein the light receiving portion is a light receiving element  
array in which the index grating and the light receiving portion  
are integrated with each other.

20 3. The photoelectric encoder according to Claim 1,  
further comprising:

an aperture disposed at a position of a focal point of  
the lens.

25 4. The photoelectric encoder according to Claim 1,

wherein the lens is a lens array.

5. The photoelectric encoder according to Claim 4,  
further comprising:

5 an aperture array disposed at a position of a focal point  
of the lens array.

6. The photoelectric encoder according to Claim 4,  
further comprising:

10 a partition plate disposed between adjacent lenses of  
the lens array.

7. The photoelectric encoder according to Claim 1,  
wherein the main scale is of a reflection-type.

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8. The photoelectric encoder according to Claim 1,  
further comprising:

a diffused light source,

wherein the lens serves also as a collimator lens.

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9. A photoelectric encoder comprising:

a main scale with a grating;

a light receiving portion with an index grating and a  
light receiving element, the light receiving portion capable

25 move relative to the main scale, the light receiving portion

detecting a bright/dark pattern obtained at least by the grating  
of the main scale; and

an aperture disposed between the main scale and the light  
receiving portion,

5        wherein a magnification of an image is set by adjusting  
distances among the aperture, the main scale and the light  
receiving portion.

10        10.    The photoelectric encoder according to Claim 9,  
wherein the light receiving portion is a light receiving element  
array in which the index grating and the light receiving portion  
are integrated with each other.